

**THE PREVALENCE OF HUMAN
IMMUNODEFICIENCY SEROPOSITIVITY IN
PATIENTS PRESENTING WITH FIRST EPISODE
PSYCHOSIS.**

By

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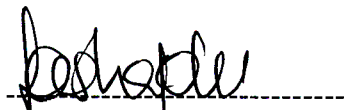
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DECLARATION

This document was compiled by the author with the assistance of the Head of Department of Psychiatry, Prof D.L Mkize.

This study represents the original work by the author and where use was made of the work of others it has been acknowledged and referenced accordingly.

The work profiled in this document has not been submitted previously to this or any other university.

A handwritten signature in black ink, appearing to read 'Sibongile Mashaphu', is written over a horizontal dashed line.

Dr Sibongile Mashaphu

DEDICATION

This thesis is dedicated to my caring, supportive and loving parents and siblings for their unconditional support and constant encouragement throughout my academic career.

PRESENTATIONS AND PUBLICATIONS

1. Mashaphu S, Mkize D.L

The Seroprevalence of HIV in First Episode Psychosis, oral presentation at the African Association of Psychiatrists & Allied Professions Conference, Addis Ababa, Ethiopia, 24-25 April 2006

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LIST OF ABBREVIATIONS

AIDS:	Acquired Immunodeficiency Syndrome
ANC:	Antenatal Clinics
CNS:	Central Nervous System
FEP:	First episode psychosis
HIV:	Human Immunodeficiency Virus
DSMIV:	Diagnostic Statistical Manual of Mental Disorders–version4
VCT:	Voluntary counselling and testing

ETHICAL APPROVAL

This study was approved by the Nelson R. Mandela School Of Medicine Ethics Committee and the KwaZulu-Natal Provincial Department of Health. Reference number: H006/05

ABSTRACT

Background

Patients infected with the human immunodeficiency virus (HIV), the causative agent of the acquired immunodeficiency syndrome (AIDS), have high rates of psychiatric morbidity. The effects of HIV on the Central Nervous System may lead to psychiatric morbidity even before the appearance of the full-blown AIDS syndrome.

Sero-prevalence studies of patients with psychoses have found an estimated 5-20% to be HIV positive. However, sero-prevalence estimates vary from study to study due to the differences in sampling by geographic location, socio-economic class, race and ethnicity, and psychiatric-diagnostic composition.

The Republic of South Africa has some of the highest prevalence rates in the world and research in this field is escalating rapidly. However research on HIV in patients with mental illness, particularly psychosis is very sparse.

Aim of the study

To determine the prevalence of HIV sero-positivity amongst patients admitted to Town Hill hospital presenting with first episode psychosis.

Method

All patients presenting to Town Hill hospital with first episode of psychotic symptoms were recruited to participate in the study. The treating doctor in collaboration with the multi-disciplinary team made the diagnosis of Psychosis. A total number of 63 patients participated in the study.

Results.

23.8% of the patients tested positive for the human immunodeficiency virus.

Conclusions.

The prevalence of HIV sero-positivity is high amongst patients presenting with first episode psychosis.

The HIV epidemic could have an important effect on the aetiology and clinical presentation of psychosis.

Recommendations

State mental health authorities should pursue the promotion of voluntary HIV testing programs, in patients presenting with first episode psychosis as soon as they are capable of giving informed consent.

PREFACE

This study represents original work done by the author and principal investigator. It has not been submitted to any other university or institution. Where use has been made of the works of others, this has been duly acknowledged in the text.

The research described in this dissertation was carried out at Town Hill hospital, Midlands complex, Pietermaritzburg, South Africa in the Department of Psychiatry, Faculty of Medicine, Nelson R. Mandela School of Medicine, College of Health Sciences, University of KwaZulu-Natal. Professor D.L. Mkize supervised this project in his capacity as the Head of the Department of Psychiatry.

In this research, the statistical planning, analyses and recommendations arising from these analyses have been done with the support of the Department of Biostatistics in the Medical Research Council of the University of KwaZulu-Natal.

CHAPTER 1

INTRODUCTION

1.1 Historical aspects of HIV infection

The HIV/AIDS pandemic has many serious effects and implications. It is globally recognised as a disease; which has massive personal, social, economic and political ramifications. The following is a brief overview of the origins and paths of the pandemic that continues to devastate communities.

Over the past two decades, the HIV-AIDS epidemic has evolved from being undetected to a leading killer of young adults. Worldwide, 95% of the infection is heterosexually transmitted, and its impact has been greatest in sub-Saharan Africa (Ward, Petersen, and Jaffe, 1997). South Africa, just like other sub-Saharan countries has millions of its people living with this disease.

The Republic of South Africa is a comparatively large country, with an estimated population of about 45 million (Statistics South Africa 2004). Current population studies estimate that 28% of this population has been affected by Human Immunodeficiency Virus (HIV)/ Acquired Immunodeficiency syndrome (AIDS) and that 13% of all the people in the world living with HIV can be found in South Africa (HIV and AIDS in South Africa, 2004).

The levels of HIV infection tend to vary across different geographic regions in South Africa as well in other countries. Of the nine provinces, KwaZulu-Natal continues to be the province with the highest prevalence after showing an increase from 19.9% in 1996 to 32,5% in 1998 (Stannard, 2001).

The AIDS epidemic often affects the most vulnerable members of a society. Individuals with severe mental illness exemplify such a group that suffers disproportionately from HIV infection in urban communities (Collins, 2002). This disease fundamentally affects people's mental health in many different ways and this has implications for those infected by the disease, their families and friends as well as society as a whole. Conversely, mental health may also have an impact on the course of the disease within individuals e.g. early detection of symptoms, ability to consent to an HIV test and eligibility for ARV's.

There are very few studies on HIV amongst the mentally ill in KwaZulu-Natal and the country as a whole.

A sero-prevalence study of HIV infection and associated psychiatric syndromes in certified adult African male patients in Town Hill and Fort Napier hospitals done in 1992 revealed a sero-prevalence rate of 2% (Chetty, 1992).

A subsequent study, on the prevalence of HIV infection amongst admissions to Town Hill Hospital in 2003 revealed a prevalence rate of 26.5% (Mestry, 2003).

Based on the above results and the escalating spread of HIV infection, one would assume that there would be higher prevalence rates of HIV infection in patients presenting with first episode psychosis.

1.2 HIV and psychiatric disorders.

Acquired immunodeficiency syndrome has become an important cause of morbidity and mortality in the practice of medicine in general. Psychiatric symptoms and disorders are also becoming increasingly evident in Human immunodeficiency virus infected patients.

Psychiatric morbidity in HIV can result from pre-existing psychiatric conditions or the devastating psychosocial impact of having a life-threatening illness. Psychiatric complications can also be secondary to metabolic derangements, effects of space occupying lesions, central nervous system (CNS) infections, side effects of medications or the direct cytopathic effects of the virus on the CNS (Khouzam et al, 1998).

The commonest psychiatric syndromes that are associated with HIV-related disorders are depression, delirium, dementia, anxiety and psychosis (Grant I, Atkinson JH; 1995 page 1664).

Psychotic symptoms during the course of a HIV infection constitute a well-known but relatively rare complication, often occurring late in the disease (Khouzam et al, 1998).

Sero-prevalence studies of patients with psychoses have found 5-20% to be HIV positive (Susser et al, 1997). However, sero-prevalence estimates vary from study to study due to the differences in sampling by geographic location, socio-economic class, race and ethnicity, and psychiatric-diagnostic composition. As a result, extrapolating findings from one setting to another must be done with caution.

HIV positive patients may exhibit symptoms of psychosis that are indistinguishable from primary functional disorders, which makes it difficult to establish the exact cause of the psychosis. Psychosis may be more frequently found in patients with significant AIDS-related neurocognitive impairment than in patients in earlier stages of the disease (Stern, Perkins, Evans, 2000).

Many cases arise in patients who already show physical manifestations of AIDS, but even then the psychoses may first draw attention to the disease (Thal, Chandler, Grant, 1994).

1.3 HIV and First Episode Psychosis (FEP).

First episode psychosis is defined as the presence of psychotic symptoms occurring for the first time. The clinical presentation of first episode psychosis is variable but commonly entails the presence of delusions, hallucinations, disorders of thought processes and disorganised behaviour (Doyle, Labbate, 1997).

A significant proportion of patients infected with HIV may present with psychotic symptoms as the initial manifestation of this disease (Thal et al, 1994). Contrary to this, the psychotic symptoms may occur at any stage in the course of this illness but they are usually late complications of HIV infection (Grant I, Atkinson JH; 1995 page 1665).

Psychiatrists practising in state and private hospitals in and around Durban have been seeing a lot of patients with HIV infection who are referred for psychiatric evaluation through consultation-liaison. Some of these patients present with psychiatric symptoms for the very first time. The greatest challenge for the psychiatrist lies with the determination of the exact relationship between HIV and the psychiatric symptoms.

First episode psychosis occurring in an HIV infected patient raises considerable problems in deciding whether the presentation is organic or functional. This is further complicated by the fact that the age range of the peak incidence of HIV infection overlaps with that for

schizophrenia and mood disorders in the general population (Doyle et al, 1997).

In order to gauge the impact of the HIV epidemic on psychotic disorders, both the magnitude and the causal direction of the association between HIV infection and psychosis need to be examined (Susser, 1997).

Beyond known causes of psychosis (delirium, substance-related disorders, neurological diseases, opportunistic infections or neoplasms), several theories have been offered to explain new-onset psychosis in HIV positive individuals; in which no known cause can be identified; these include the direct effects of HIV on the brain. This theory is derived in part from a growing body of literature suggesting that HIV can cause an array of nervous system disorders, such as HIV dementia complex (Thal et al, 1994).

With regard to the causal direction, the earliest sero-prevalence studies included many chronically ill patients whose psychotic disorder predated the emergence of HIV, suggesting that psychosis can increase the risk of HIV- presumably because of high-risk behaviours. On the other hand, reports have described new-onset psychosis in the presence of antecedent HIV infection, suggesting that HIV infection can be a cause of psychosis (Susser, 1997).

The exact aetiological association of HIV infection and psychosis remains to be established and the presumption of any change in neuropsychological or functional status based on being seropositive alone is unwarranted (Doyle et al, 1997).

1.4 Voluntary counselling and testing in patients with mental illness

When comparing anonymous HIV sero-prevalence studies to hospital infection records, it appears that many patients leave psychiatric inpatient units with their HIV infection undetected. These findings underscore the importance of routinely asking patients about HIV-related risk behaviours and offering HIV counselling and testing services (Cournos et al, 1991).

Is routine HIV testing warranted in patients presenting with first episode psychosis? Experts in favour of mandatory HIV testing for this population point out that knowledge of a patient's HIV status is crucial for differential diagnosis and that the overall benefits of knowing your status outweigh the risks of the distress caused by testing (Walkup, Satriano, Barry, 2002).

The greatest challenge for mental health care practitioners in this country is that the majority of our mental health care users have very little education and are often deemed incapable of giving informed consent on those grounds. In addition they have cognitive deficits,

which are either a function of their underlying psychiatric condition or a side effect of the medication that they are taking.

Ethical considerations with regards to informed consent and autonomy in patients suffering from mental illnesses are still debated at large. However such ethical issues fail to recognise the continuing spread of HIV infection among the seriously mentally ill (Walkup et al, 2002). In my opinion targeted prevention, which was once rejected because of the belief that it was too divisive should now be a top priority.

1.5 Motivation for this study

This study was designed to address and answer some of the crucial concerns and questions that the researcher has had with regards to HIV and psychosis. Improved health care in this country has resulted in prolonged life expectancy among individuals living with HIV. This allows for the development of conditions and syndromes not previously recognised. In recent times, more and more of the patients that present to psychiatric facilities with psychosis have co-morbid HIV infection and very often psychiatrists get tempted to label them as HIV psychosis. This occurs commonly in cases where there are no other possible explanations e.g. genetic vulnerability or substance abuse. It is the researcher's personal opinion that the use of the term HIV psychosis in patients with a confirmed diagnosis of HIV infection is misleading.

The researcher also believes very strongly that with the increasing numbers of HIV infection world-wide, HIV education and voluntary testing and counselling should be made available to all, including patients with serious mental illness.

This study was conducted in Town Hill hospital, which is located in the uMgungundlovu district (Pietermaritzburg). Town Hill hospital is a specialised psychiatric hospital, which offers amongst other services, acute inpatient care for adult males and females. The main reason for this selection was that the majority of patients that are referred to this facility are free of physical problems because they have been screened at district level, hence they were deemed suitable for this research project.

CHAPTER TWO

LITERATURE REVIEW

2.1 History of the HIV/AIDS epidemic

AIDS emerged in the 1980's as the most terrifying epidemic of modern times. Initially AIDS was seen as a rare condition affecting homosexual men. It was only recognised as a global health problem of paramount importance in 1986 (Mahler, 1986).

Whilst rife in the USA and Europe, its impact is far greater in Sub-Saharan Africa and other developing countries. In Botswana, Swaziland and Zimbabwe, up to one in three adults is estimated to have HIV infection (Jackson, 2002 page 8).

The appearance of AIDS on the medical and social scene in the early 1980's has been followed by worldwide spread of the disease and escalating numbers of persons affected. It affects primarily young to middle aged adults, on whom both the national economy and family survival depend. It has the potential to devastate human development, setting countries back years in their efforts to increase infant and child survival, achieve a longer life expectancy and promote better life chances (Jackson, 2002 page 3). Table 1 is a tabulated illustration of the global HIV/AIDS epidemic. It illustrates the numbers of people living with HIV/AIDS, the newly infected and AIDS deaths for the year 2001.

Table 1

The Global Summary of the HIV/AIDS Epidemic, December 2001		
Number of people living with HIV/AIDS	Total	40 million
	Adults	37.2 million
	Women	17.6 million
	Children under 15years	2.7 million
People newly infected with HIV in 2001	Total	5 million
	Adults	4.3 million
	Women	1.8 million
	Children under 15years	800 000
AIDS deaths in 2001	Total	3 million
	Adults	2.4 million
	Women	1.1 million
	Children under 15years	580 000
UNAIDS and WHO (2001:1)		

Table 2 is an illustration of the regional HIV and AIDS statistics for years 2004 and 2006. It was obtained from the 2006 AIDS Epidemic update. It compares statistics of adults and children living with HIV, those that have been newly infected, the adult prevalence and the AIDS deaths. According to this table sub-Saharan Africa is the region that has been most affected, with increasing numbers of new infections and AIDS deaths. North America is the region with the lowest prevalence and new infections. They also seem to be able to contain the epidemic because the number of new cases remained constant from 2004 to 2006.

Table 2
Regional HIV and AIDS statistics and feature, 2004 and 2006

	Adults and children living with HIV	Adults and children newly infected with HIV	Adult prevalence (%)*	Adult and child deaths due to AIDS
Sub-Saharan Africa				
2006	24.7 million [21.8–27.7 million]	2.8 million [2.4–3.2 million]	5.9% [5.2%–6.7%]	2.1 million [1.8–2.4 million]
2004	23.6 million [20.9–26.4 million]	2.6 million [2.2–2.9 million]	6.0% [5.3%–6.8%]	1.9 million [1.7–2.3 million]
Middle East and North Africa				
2006	460 000 [270 000–760 000]	68 000 [41 000–220 000]	0.2% [0.1%–0.3%]	36 000 [20 000–60 000]
2004	400 000 [230 000–650 000]	59 000 [34 000–170 000]	0.2% [0.1%–0.3%]	33 000 [18 000–55 000]
South and South-East Asia				
2006	7.8 million [5.2–12.0 million]	860 000 [550 000–2.3 million]	0.6% [0.4%–1.0%]	590 000 [390 000–850 000]
2004	7.2 million [4.8–11.2 million]	770 000 [480 000–2.1 million]	0.6% [0.4%–1.0%]	510 000 [330 000–740 000]
East Asia				
2006	750 000 [460 000–1.2 million]	100 000 [56 000–300 000]	0.1% [<0.2%]	43 000 [26 000–64 000]
2004	620 000 [380 000–1.0 million]	90 000 [50 000–270 000]	0.1% [<0.2%]	33 000 [20 000–49 000]
Oceania				
2006	81 000 [50 000–170 000]	7100 [3400–54 000]	0.4% [0.2%–0.9%]	4000 [2300–6600]
2004	72 000 [44 000–150 000]	8000 [3900–61 000]	0.3% [0.2%–0.8%]	2900 [1600–4600]
Latin America				
2006	1.7 million [1.3–2.5 million]	140 000 [100 000–410 000]	0.5% [0.4%–1.2%]	65 000 [51 000–84 000]
2004	1.5 million [1.2–2.2 million]	130 000 [100 000–320 000]	0.5% [0.4%–0.7%]	53 000 [41 000–69 000]
Caribbean				
2006	250 000 [190 000–320 000]	27 000 [20 000–41 000]	1.2% [0.9%–1.7%]	19 000 [14 000–25 000]
2004	240 000 [180 000–300 000]	25 000 [19 000–35 000]	1.1% [0.9%–1.5%]	21 000 [15 000–28 000]
Eastern Europe and Central Asia				
2006	1.7 million [1.2–2.6 million]	270 000 [170 000–820 000]	0.9% [0.6%–1.4%]	84 000 [58 000–120 000]
2004	1.4 million [950 000–2.1 million]	160 000 [110 000–470 000]	0.7% [0.5%–1.1%]	48 000 [34 000–66 000]
Western and Central Europe				
2006	740 000 [580 000–970 000]	22 000 [18 000–33 000]	0.3% [0.2%–0.4%]	12 000 [<15 000]
2004	700 000 [550 000–920 000]	22 000 [18 000–33 000]	0.3% [0.2%–0.4%]	12 000 [<15 000]
North America				
2006	1.4 million [880 000–2.2 million]	43 000 [34 000–65 000]	0.8% [0.6%–1.1%]	18 000 [11 000–26 000]
2004	1.2 million [710 000–1.9 million]	43 000 [34 000–65 000]	0.7% [0.4%–1.0%]	18 000 [11 000–26 000]
TOTAL				
2006	39.5 million [34.1–47.1 million]	4.3 million [3.6–6.6 million]	1.0% [0.9%–1.2%]	2.9 million [2.5–3.5 million]
2004	36.9 million [31.9–43.8 million]	3.9 million [3.3–5.8 million]	1.0% [0.8%–1.2%]	2.7 million [2.3–3.2 million]

2.2 The HIV sero-prevalence in South Africa.

The first AIDS cases reported in 1982 in South Africa occurred among homosexual men, blood transfusion recipients and haemophiliacs. By the late 1980s the epidemic had spread to affect the heterosexual population (Abdool-Karim et al, 2002).

South Africa has the fastest growing epidemic of any country in the world (HIV/AIDS in South Africa 2002). It is estimated that 6.5 million people over the age of 2 were living with HIV/AIDS in 2002 (Statistics South Africa 2002). Of these, over 6.1 million were in the age group 18-64 years (Statistics South Africa 2002).

Following the new political dispensation, South Africa has been divided into nine provinces. This was done with the aim of redressing some of the imbalances of the past and to facilitate administration and governance. However, the reality is that there are striking inequalities between the provinces on various levels (Gilbert, Walker, 2002).

The HIV prevalence data by provinces revealed a differential distribution of the burden of HIV/AIDS between the provinces, with KwaZulu-Natal having the highest rates. KwaZulu-Natal accounts for 27% of the total infections, and between 25.7% and 27.6% of infections in all the adult groups. Gauteng accounts for 22.4% of infections overall. These differences are most likely influenced by the social factors; which facilitate and expedite the spread of the disease (South

African New AIDS Statistics 2006). The prevalence rates in other provinces are reflected on the table below.

Table 3: HIV prevalence rates among antenatal clinic attendees. 2006

Estimated HIV prevalence among antenatal clinic attendees, by province The South African Department of Health Study, 2006						
Province	2001 Prevalence %	2002 Prevalence %	2003 Prevalence %	2004 Prevalence %	2005 Prevalence %	2006 Prevalence %
KwaZulu-Natal	33.5	36.5	37.5	40.7	39.1	39.1
Mpumalanga	29.2	28.6	32.6	30.8	34.8	32.1
Free State	30.1	28.8	30.1	29.5	30.3	31.1
Gauteng	29.8	31.6	29.6	33.1	32.4	30.8
North West	25.2	26.2	29.9	26.7	31.8	29.0
Eastern Cape	21.7	23.6	27.1	28.0	29.5	29.0
Limpopo	14.5	15.6	17.5	19.3	21.5	20.7
Northern Cape	15.9	15.1	16.7	17.6	18.5	15.6
Western Cape	8.6	12.4	13.1	15.4	15.7	15.2
National	24.8	26.5	27.9	29.5	30.2	29.1

These results have been extrapolated from the annual antenatal surveys; which are repeated every year since 1990. These surveys give us information about the growth rate of the HIV epidemic.

2.3 Demographic characteristics of the South African society

The South African society is marked by gross social inequalities, manifesting themselves mainly along racial class and gender. These racial inequities have shaped the social and health profiles of the community including the health care of South Africa.

In 1999, 10.5% of the South African Population were White, 2.5% Indian, 8.8% Coloured and 77.2% African. The African population is young and expanding, with over 25% of the population below the age of 15 years. The percentage of the population in the economically active age is smaller for the African and Coloured than for the White and Indian groups. The infant mortality rate is highest for the African population (48 per thousand) and lowest for whites (7 per thousand). The mean national life expectancy at birth is 62 years for men and 68 years for women (HIV and AIDS in South Africa, 2002).

The economic situation in the country also follows similar trends. Historically, the South African economy was structured around a system of migrant labour. This resulted in the migration of young men and women from rural to urban areas. The rapid and uncontrolled urbanisation in the African population resulted in family breakdown, high levels of urban and rural poverty, and the rampant spread of diseases associated with impoverishment and population mobility (Jackson, 2002 page 30).

In South Africa, racial imbalances exist on every level, with African people most severely affected. Among Africans, 57% had attained standard five education or less, compared with 50% among coloureds, 22% among Indians, and 1% among whites. Urbanisation has been an important factor in determining both the population's health and its disease patterns. The country's urban population is predicted to double by the year 2010, creating an enormous challenge for planners of health, housing and other social services (Jackson, 2002 page 10).

Gender differences and inequalities can also be demonstrated at various levels. These include employment, control over reproduction, the law, education, and sexuality (Gilbert, Walker, 2000). Unemployment rates are higher for women than men in all racial categories. African women are the poorest, most economically marginalized, and least educated sector of the South African population, thus placing them at the bottom of the health pile in this country (Gilgen et al, 2000; Susser, 2002).

The purpose of this brief overview of the South African social context is to provide insight into the historical progression as well as the current state of HIV/AIDS in South Africa.

2.4 Factors associated with the acquisition of HIV

Many people with mental illness must contend with psychiatric symptoms, as well as socio-economic conditions; which increase their vulnerability to infection. Opportunities for sexual relationships may be altered due to stigma and symptomatology, and coercive sexual encounters may be more frequent (Collins, 2004).

Despite the threat of HIV infection among individuals with severe mental illness, little has been done to address this problem in South Africa (Collins, 2004). While many mental health professionals acknowledge that their patients are likely to be at higher risk for HIV infection, there have been limited resources to address this epidemic in the psychiatric population (Collins, 2004).

In the United States behavioural interventions have been developed following the realisation of the higher risks for HIV infection amongst individuals with severe mental illness (Collins, 2004). The knowledge of risk factors associated with the acquisition of the HIV bears importance for future preventive measures and interventions.

Dr Pamela Collins conducted pilot work in South Africa, exploring themes of stigma and HIV risk, patient relationships, barriers to safe sex and intervention strategies with 50 mental health care providers in four provinces in the country.

The overall goal of this study was to enable mental health care practitioners in South Africa to develop effective prevention strategies for individuals with severe mental illness. The research team and investigators developed HIV prevention manuals for use in patients with severe mental illnesses. This will most probably increase the likelihood that men and women admitted to psychiatric institutions will be exposed to appropriate HIV risk reduction messages.

2.4.1 Chronic mental illness

Most of the psychiatric conditions run a chronic course because of the biological, psychological and social factors that play a major role in these disorders and lack of curative interventions. These disorders are characterised by frequent relapses and remissions.

Individuals with schizophrenia, bipolar disorder or other chronic mental disorders are believed to be at increased risk for HIV acquisition and transmission based on impulsiveness, difficulty in perceiving risk, and co-morbidities such as substance abuse (Kaplan et al, 1998 page 365).

A study done by McKinnon, Counos and Herman in Columbia university in 2002 found high rates of HIV infection, STIs and sexual and drug-use risk behaviours among people with severe mental illness. They also highlighted the importance of training to enhance clinicians' skills in educating the psychiatric population in order to minimise the devastating impact of HIV infection.

A similar study was done amongst patients with severe chronic mental illness in India. High-risk behaviour was observed in 59% of the patients with schizophrenia, 48% of patients with affective disorders and 50% of patients with personality disorders. The commonest types of risk behaviours reported included having a risky sexual partner, having multiple sexual partners and exchanging money for sex. (Chandra et al, 2005).

2.4.2 Coercive sexual practices

Although HIV prevention campaigns usually encourage people to use condoms and reduce their number of sexual partners, women and girls in South Africa are often unable to negotiate safer sex. They are also particularly vulnerable to sexual abuse and rape, and are economically and socially subordinate to men (HIV and AIDS in South Africa, 2002).

The occurrence of sexual coercion and abuse of severely ill mental patients is frequently reported. A study done in India, in an inpatient sample of 146 female patients, found that 30% had experienced sexual coercion. A further 16% reported adult sexual abuse (Chandra et al, 2005).

2.4.3 Substance abuse

The spread of HIV among drug users continues to be one of the most volatile aspects of the HIV/AIDS pandemic. However, unlike the pattern in Western countries, although recreational drug use is extensive, injecting drug use has been limited, and needle sharing does not appear to be a very important mode of HIV transmission in South Africa, with sexual intercourse remaining as the main mode (Abdool-Karim et al, 2002).

2.5 Biomedical aspects of HIV infection

The Human Immunodeficiency Virus type 1 (HIV-1) has been clearly identified as the primary cause of AIDS (Barre-Sinoussi, 1999). HIV-1 is a member of the lentiviridae subfamily of retroviruses, which characteristically causes an indolent infection with a long period of clinical latency. Infection invades the nervous system, causes persistent viremia, and weakens the humoral and cellular immune response of the infected individual. HIV has a remarkably complex viral genome, which probably underlies its profound pathogenicity (Varmus, 1990).

The retroviridae encode their genetic material in the host's ribonucleic acid (RNA). After entering the host cell, the virus uses the enzyme reverse transcriptase to create a DNA copy; which is then incorporated into the host cell's genetic material. This viral DNA further directs the formation of more viral genetic material and viral structural and

functional proteins. Ultimately the virion is assembled, and it leaves the host cell through a process of budding. Infection occurs when the HIV-1 attaches to specific receptor sites (CD4+ sites) on the host cell and replication occurs in rapidly dividing cells (Grant I, Atkinson JH; 1995 page 1657).

The modes of transmission include heterosexual and homosexual intercourse, vertical transmission from infected mother to foetus or newborn during breastfeeding and instrumental transmission through contaminated fluids or materials (Grant I, Atkinson JH; 1995 page 1660).

Worldwide the sexual mode of transmission appears to be the most important. Penile-vaginal and penile-anal intercourse, and any sexual activity that can cause a rupture of tissue and the presence of blood, are considered the highest risk sexual behaviours (Susser et al, 1995).

The use of needles or any other equipment during injection drug use constitutes a very efficient means of transmitting HIV and amounts to a direct inoculation of viral particles from the infected to the uninfected person (Susser et al, 1995).

2.6 Neurobiological aspects of HIV infection (Lishman, 1987 pages 315-335).

It has become clear that the nervous system is an early target in HIV disease, with abnormalities developing in the cerebrospinal fluid in a large proportion of asymptomatic HIV-positive individuals. This was not apparent at first, but it has now been proven by electron-microscopy and immunocytochemistry.

The neurobiological complications of HIV infection can be primary or secondary. The primary neurobiological complications are those that can be attributed directly to HIV infection of the central nervous system, or to immunopathological events precipitated by HIV infection. Secondary neurobiological complications include infections and neoplasms facilitated by the immunodeficiency state, cerebrovascular complications and toxic states produced by HIV-associated medical illnesses. Thirdly one can have complications of systemic therapies for AIDS and its associated disorders.

From a psychiatric perspective, the most important of the primary neurobiological complications are the HIV-associated neurocognitive disorders e.g. dementia and delirium.

Table 4 is a summary of the neuro-psychiatric manifestations of HIV infection. This table was prepared by the author.

TABLE 4: NEUROPSYCHIATRIC MANIFESTATIONS OF HIV

<p>Opportunistic infections of the central nervous system</p> <ol style="list-style-type: none"> 1. Bacterial-tuberculosis 2. Fungal-cryptococcus, candida albicans 3. Protozoal –toxoplasmosis 4. Viral –cytomegalovirus, herpes simplex, herpes zoster, JC virus
<p>Neoplasia of the central nervous system</p> <ol style="list-style-type: none"> 1. Primary Non-Hodgkin's lymphoma 2. Secondary Kaposi's sarcoma
<p>Primary HIV infection of the central nervous system</p> <ol style="list-style-type: none"> 1. HIV encephalitis 2. HIV leuko-encephalopathy 3. Vacuolar leukoencephalopathy 4. Diffuse poliodystrophy 5. Cerebral vasculitis 6. Lymphocytic meningitis
<p>Psychiatric manifestations.</p> <ol style="list-style-type: none"> 1. HIV associated dementia 2. Psychosis 3. Anxiety 4. Depression 5. Delirium 6. Adjustment disorders

2.7 HIV and psychiatric disorders

The psychosocial consequences of HIV infection could lead to profound emotional disturbance, even among those who were physically well or had sustained no more than a risk of exposure to the virus. Vulnerable persons, in groups at special risk, could display neurotic and sometimes psychotic symptomatology; which needs to be distinguished from the effects of brain pathology (Lishman, 1987 page 330).

HIV infection and psychiatric disorders have a very complex and interesting relationship. The psychological and psychiatric issues associated with HIV infection have received considerable attention over the last two decades. Whilst the exact aetiological relationship between HIV infection and psychiatric disorders remains to be established, there are some studies that have attempted to explain this relationship based on scientific observations (Chung, Suarez, Zarin, Pincus April 1999).

The relationship between HIV infection and psychiatric disorders is dependent on a variety of factors. The knowledge and awareness of one's HIV positive status often results in emotional reactions of a serious nature. Added to this, the HIV itself has direct effects on the brain that may lead to neurocognitive disturbances, psychosis or behavioural changes (Chandra, Desai, Ranjan, 2005). Opportunistic neurological and systemic infections and their treatment may also lead to other neuropsychiatric problems. Furthermore, individuals with

severe mental illness constitute a group at extremely high risk owing to their cognitive deficits, involvement in risk taking behaviour and lack of treatment adherence, presumably as a consequence of their illness (Lishman, 1987 page 330).

In any given individual, more than one of these factors could be involved thus leading to complex clinical manifestations.

The psychiatric syndromes associated with HIV infection include the following:

1. Dementia

The major clinical syndromes which appear to be due to the primary brain infection are the so-called AIDS-dementia complex or HIV-associated dementia (Lishman, 1987 page 324). HIV-associated dementia has emerged as the commonest central nervous system manifestation in patients with HIV disease. It is characterised by a decline in memory that may not be severe enough to impair activities of daily living. Decline in motor function and psychotic features may be present (Grant I, Atkinson JH; 1995 page 1664).

2. Delirium (Grant I, Atkinson JH; 1995 page 1664).

Delirium occurs when a patient experiences rapidly evolving cognitive decline, especially in the areas of attention, learning and remembering new information and orientation with reduced or fluctuating alertness.

The prevalence and incidence of delirium in HIV illness is unknown, although it is generally one of the most frequent diagnoses made by psychiatrists. The combination of systemic illness, neuro-cognitive impairment and multiple medications with CNS effects predispose an individual with HIV to delirium (Grant I, Atkinson JH; 1995 page 1664).

3. Anxiety disorders

Preoccupation with HIV can be the manifest content of panic and obsessive-compulsive disorder or the probable latent source of generalized anxiety disorder. There is no systematic evidence of whether anxiety disorder due to a general medical condition occurs in the context of HIV infection of the brain (Grant I, Atkinson JH; 1995 page 1660).

4. Adjustment disorders

These are emotional or behavioural symptoms that develop in response to an identifiable psychosocial stressor or stressors. There are no studies yet that predict rates of adjustment disorder and attempt to link them to transition points in HIV illness or intercurrent non-HIV events (Grant I, Atkinson JH; 1995 page 1659).

5. Mood disorders

5.1 Depressive disorders.

Recent observational studies have suggested that the prevalence of depression in HIV positive persons ranges between 4% and 14%,

compared to the general population. The main problem in diagnosing depression in patients with HIV disease is the overlap between symptoms of organic brain disease and primary depression. Another barrier to the effective diagnosis of depression in the medically ill is the understandable but incorrect notion that depression is a situationally appropriate response to medical illness. In hospitalised individuals with more advanced disease, some early estimates based on chart reviews suggest that 40% of hospitalised individuals with frank AIDS may meet the criteria for major depressive disorder. It has not yet been determined whether HIV itself increases the likelihood of major depressive disorder beyond the expected increases found in other chronic disease (Grant I, Atkinson JH; 1995 page 1660).

5.2 Bipolar disorders

Mood disorders with manic features, with or without hallucinations, delusions, or disorders of thought processes occur rarely, but they can complicate any stage of HIV infection (Grant I, Atkinson JH; 1995 page 1661). Primary manias, although rarely directly associated with HIV infection, have been reported. Secondary manias, occurring because of the medical complications of HIV or pharmacological treatment, can emerge anytime during HIV infection (Khouzam, Donnelly, Ibrahim, 1998).

6. Psychotic disorders

HIV and psychotic disorders

Psychotic symptoms are usually later-stage complications of HIV infection (Thal et al, 1994). Other researchers reported similar results. A significant proportion of patients infected with HIV may present with psychotic symptoms as the initial manifestation of this disease. The psychotic symptoms may occur at any stage in the course of this illness but they are usually late complications of HIV infection (Grant I, Atkinson JH; 1995 page 1665).

2.8 HIV and First Episode Psychosis

Psychotic symptoms can occur in delirium or can reflect neurological or primary psychiatric disorder or iatrogenic origins, there is also considerable interest in new-onset psychosis; where-in those aetiologies do not appear to be present. Prevalence estimates vary widely depending on methodology: large scale surveys find a prevalence of new onset psychosis at less than 0.5 percent, while chart review methods find frequencies ranging from 3 to 15 percent in persons in whom obvious causes have been excluded (Grant I, Atkinson JH; 1995 page 1665).

A study done by Ezra Susser, Alan Berkman et al, 1997 examined HIV infection among adults with newly diagnosed psychotic disorders. They found that a minimum of 3.8% of the patients who participated in the study had contracted HIV infection before their first hospital admission.

There was no definite evidence that HIV caused the psychosis in any of the patients but this aetiology could not be ruled out. One plausible explanation for these results is that HIV infection is a more common cause of psychosis than has been previously recognised.

A review article by Vogel-Scibilia, Mulsant and Keshvan, 1988 discussed the literature review on HIV and psychosis. They argued that these cases could in fact represent either coincidental schizophrenia or bipolar disorder.

A study done by Alciati et al, 2001 whose objective was to assess the relationship between HIV-associated psychotic symptoms and demographic, psychopathological and medical variables found that organic symptoms of psychosis in those infected with HIV are related to the systemic and cerebral complications of HIV rather than to the psychotic process itself.

In a study done by Niederecker et al in 1995, a total of 1046 HIV positive patients were examined regarding psychoses. Amongst these patients only 0.9% suffered from psychoses, and a causal relationship between HIV infection and psychosis was probable in only 3 patients. These data did not indicate a markedly elevated prevalence of psychosis in HIV positive or AIDS patients.

7. Sleep disorders

Decreased sleep quality, difficulty falling asleep, fragment night-time sleep and early morning awakening seem to increase as immune function and CD4 lymphocyte counts diminish, and they may affect a substantial proportion of persons with AIDS (Grant I, Atkinson JH; 1995 page 1666).

2.9 Psychosocial factors associated with HIV/AIDS (Grant I, Atkinson JH; 1995 page 1665)

1. HIV and the chronically mentally ill

In metropolitan areas at the centre of the AIDS epidemic, the prevalence of HIV sero-positivity among patients admitted to general psychiatric hospitals may exceed 10 percent, and it is believed that HIV testing is underused by many physicians treating the chronically mentally ill. Individuals with schizophrenia, bipolar disorder and other chronic mental disorders are believed to be at risk for HIV acquisition. This is based on impulsiveness, difficulty in perceiving risk and co-morbidities such as concurrent intravenous drug use and unsafe sexual practices.

2. Suicide

Suicide is a complex bio-psychosocial outcome of depression, hopelessness, isolation and lack of support. HIV infection with all its negative connotations and discrimination can provide one with a focus

for suicidal ideations. The psychiatric variables associated with suicidal ideation were the presence of depression, hopelessness and anxiety. Stigma has also been considered as an important variable in predicting suicide (Chandra et al, 2005).

3. Bereavement

Persons in social communities representing the high-risk groups for HIV infections are subject to repeated bereavement. Since HIV is sexually transmitted, one of the partners may succumb to the illness, leaving the other partner behind. Similarly, maternal transmission of the virus to the newborn may result in increased morbidity and mortality among the offspring of the infected individual.

The severity of HIV and AIDS, the loss of health, a decrease in functioning, the deterioration of body integrity, and the anticipatory loss of life may also result in bereavement.

Summary of the literature review.

HIV infection is rife world-wide and Sub-Saharan Africa carries the greatest burden of this epidemic. HIV infection is spreading at an alarming rate in South Africa just like it is doing in other parts of the world. It commonly affects individuals in vulnerable communities.

People with mental illness are not spared from this devastating illness. HIV infection is an example of a medical illness that is associated with psychiatric morbidity. Medical improvement in HIV patients leads to increased survival time and prolonged longevity for AIDS patients. This provides more time for the development of psychiatric morbidity.

Research suggests that there is a possible link between HIV and psychosis, and further research is needed to establish the relationship between HIV and FEP. The challenge now facing psychiatry is to promote awareness about HIV amongst individuals with mental illness.

CHAPTER THREE

AIM AND OBJECTIVES OF THE STUDY

3.1 Aim

The aim of the study was to determine the prevalence HIV sero-positivity amongst adult patients admitted to Town Hill hospital with First Episode Psychosis (FEP).

3.2 Hypothesis

There is a high sero-prevalence rate of HIV in patients presenting to Town Hill hospital with first episode psychosis.

3.3 The objectives of this study were as follows:

- 3.3.1 To assess the HIV status in patients presenting to Town Hill Hospital with first episode psychosis.
- 3.3.2 To determine if routine HIV testing is indicated in patients presenting with first episode psychosis
- 3.3.3 To compare the findings with those of similar studies
- 3.3.4 To make recommendations based on the results.

CHAPTER FOUR

METHODOLOGY

4.1 Data collection

4.1.1 Informed consent

The patients were approached individually and addressed in their preferred language to participate in the study. Consent was obtained for both acceptance to participate in the study and for taking an HIV test. The consent forms were written in English and IsiZulu. For the participants who could not read, the consent form was read out in their preferred language of communication by the researcher. The consent form was signed by the patient, the researcher and an impartial witness. Only patients who were free of psychotic symptoms were recruited to participate in this research project.

According to the New Mental Health Care Act No17 of 2002, a mental health care user may not be unfairly discriminated against on the grounds of his or her mental health status. Furthermore, every mental health care user must receive care, treatment and rehabilitation services according to standards equivalent to those applicable to any other health care user. The policies and programmes aimed at promoting the mental health status of a person must be implemented with regard to the mental capacity of the person concerned.

4.1.2 HIV pre and post test counselling

HIV pre- test and post- test counselling was done by the researcher for those who chose to know their results. Special codes were provided for those patients who agreed to participate in the study but did not wish to know their results. The patients who tested HIV positive were referred to their local clinics for further management.

4.2 Study design

This was a cross sectional, point prevalence study. The study sample was collected over a six-month recruitment period (September 2005 to February 2006). All the patients presenting to Town Hill hospital with first episode psychosis were recruited to participate in the study.

The majority of the patients admitted to this hospital are black males who have been certified according to Section 9 or section 12 of the Mental Health Care Act of 1973. The patients were identified using the admission records kept at the respective male and female admission units. The patients who presented with first episode psychosis were identified by the ward doctors and then referred to the study. A DSMIV diagnosis was made by the ward doctor together with the multidisciplinary team. The patients were further screened by the principal investigator for suitability to participate in this study with the use of a patient screening document. The patients were observed closely by the researcher until they were deemed free of psychotic symptoms. At this stage the patients were transferred to the pre-

discharge ward. The patients were once again approached individually and recruited to participate in the study.

4.3 The study sample

A total of 378 patients were identified from the admission records. The final sample consisted of 63 participants, 50 male and 13 female.

A total of 315 patients were excluded according to exclusion criteria listed below

- a) Previous history of mental illness
- b) Presence of a General Medical Condition. Patients known to be suffering from HIV infection were excluded from the study. In addition, all patients with co-morbid medical conditions like epilepsy and head injury were excluded from the study group. Patients with minor general medical conditions not influencing the axis 1 diagnosis were not excluded.
- c) Refusal to participate in the study

4.4 Instruments

4.4.1 Consent form (Appendix 1)

This was prepared in both English and IsiZulu. The purpose of this document was to allow the patients to exercise their right to autonomy in deciding whether or not to participate in the study and to obtain their written permission to do so. The patients were also assured of

confidentiality. The isiZulu version of this document is also available in appendix 1.

4.4.2 Demographic Questionnaire (Appendix 2)

This was formulated according to the demographic information that was considered relevant for the purposes of this study.

4.4.3 Information leaflet (Appendix 4)

This document was formulated in both English and IsiZulu. The goal was to provide the relevant information to the participants in simple terms to facilitate and ensure adequate comprehension of the subject at hand. The information was read out to those who were unable to read. The isiZulu version of this document is available in appendix 4.

4.4.4 Patient screening document (Appendix 3)

This was prepared by the researcher to ensure that the patients who have been selected to participate meet all the inclusion criteria. It also included other relevant clinical findings that were associated with the patients' diagnosis.

4.4.5 Special investigation equipment.

Lancet laboratories provided us with specimen bottles, needles, alcohol swabs and vacutainers.

4.5 Data analysis

Data on demographic characteristics (age, gender, race, marital status, area of residence, employment), psychiatric diagnosis and substance use were obtained from patients during the screening procedure.

The data has been presented in the form of graphs and tables. Graphs illustrate the sero-prevalence rates of the selected demographic data in percentages on the y-axis and demographics on the x-axis.

Data was analysed using the statistical program SSPS version 11.5 and Epi Info 2002. The descriptive statistics such as mean and median were used to summarise the data. Measures such as standard errors and interquartile range were used as measures of variability in the data.

Tests of significance were based on the Chi-squared test. The odds ratios were used to quantify the strength and direction of association. Confidence intervals are given as 95%. All Probability P values were derived from 2-sided tests. A P value of 0.05 was considered statistically significant.

To simplify data analysis, certain items were collapsed into broader categories. Primary psychiatric disorders were collectively classified as functional psychosis and those that were due to the use of substances were classified as substance induced psychotic disorders.

4.6 Ethical considerations

Ethical approval was granted by the following.

1. Ethics Committee of the Nelson R. Mandela School of Medicine
2. The Provincial Department of Health, KwaZulu-Natal, public health services
3. The Ethics Committee of the Midlands Psychiatric Complex
4. The hospital Management of Town Hill Hospital

CHAPTER FIVE

RESULTS

5.1 Study sample

For the purposes of this study, a total of 378 patients was screened, 92 females and 286 males. This study took place from the 01 September 2005 to 28 February 2006. From the pool a total of 63 patients, 13 female and 50 male who met all the inclusion criteria were tested for HIV sero-positivity.

5.1.1 HIV sero-prevalence rate in First Episode Psychosis

Table I. shows that of 63 patients who participated in the study, 15 were found to be seropositive and 48 were found to be sero-negative; a sero-prevalence rate of 23.8%

Table 5: HIV Sero-prevalence rate

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Neg	48	76.2	76.2	76.2
Pos	15	23.8	23.8	100.0
Total	63	100.0	100.0	

5.1.2 HIV status and age

The ages of the participants ranged from 18 years and 65 years. The ages of the patients who tested HIV positive ranged from 18 to 65years

Table 6: HIV status and age

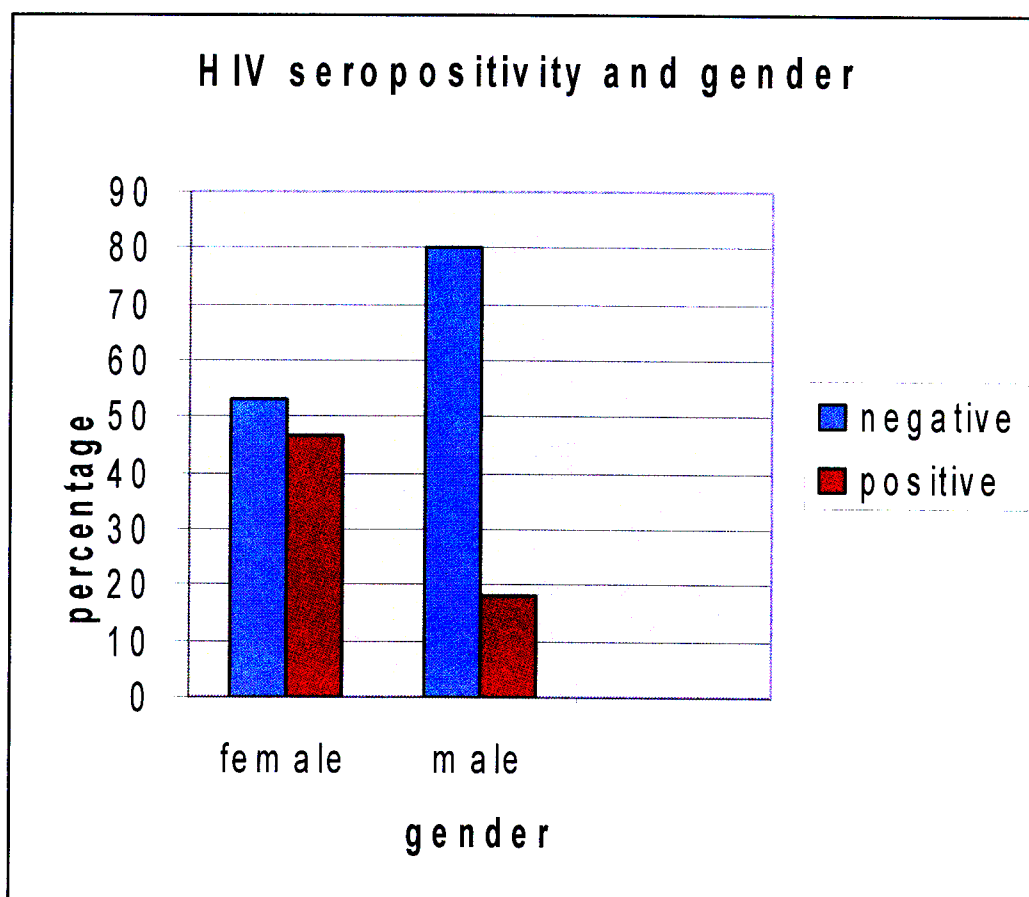
	HIV positive	HIV negative
MEAN	33.9	25.75
MODE	33.0	22.0

5.1.3 HIV sero-positivity and gender

A total number of 13 females participated in the study, 6 of which tested HIV positive (46.2%).

A total number of 50 males participated in the study, 9 of which tested HIV positive (18.0%).

Figure 1: HIV sero-positivity and gender in percentages.



5.1.4 HIV sero-positivity and race

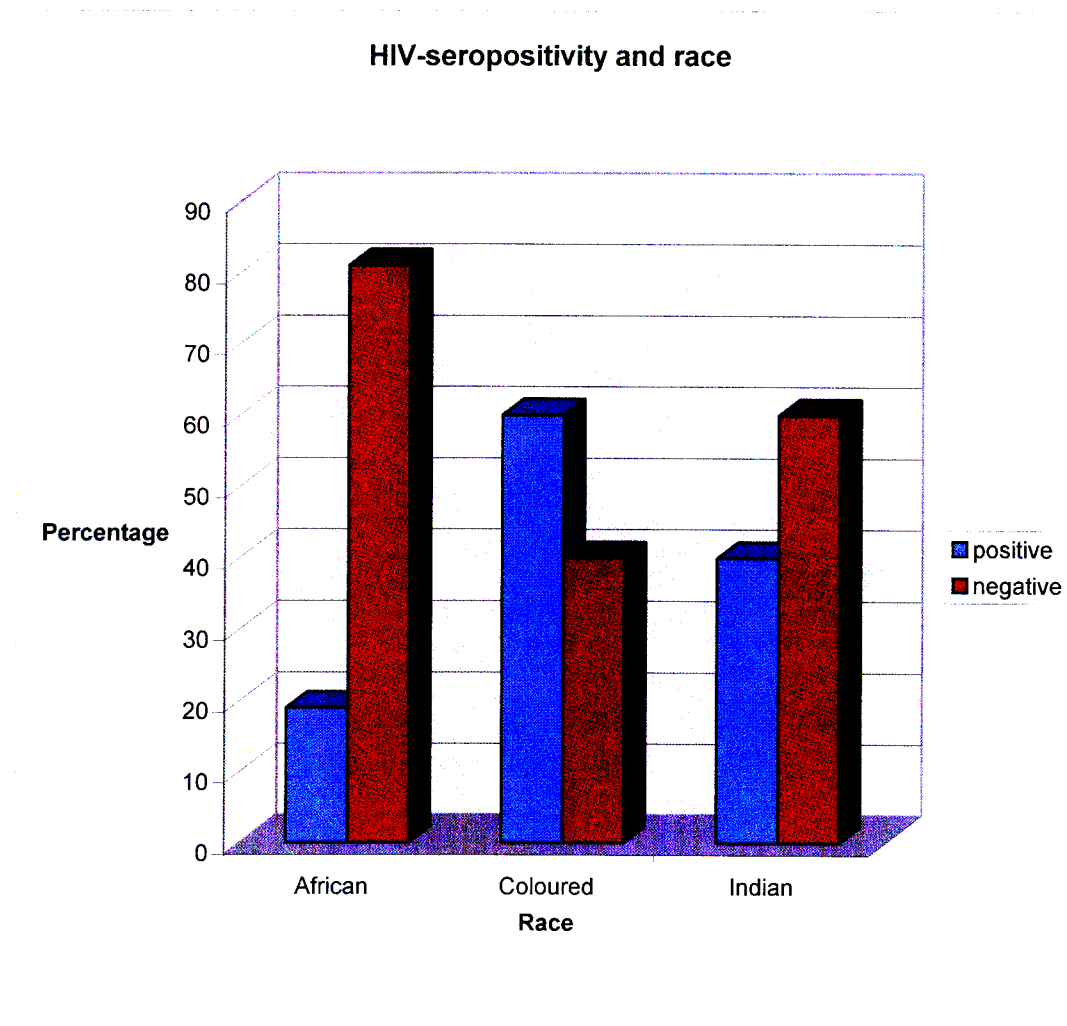
Of the 63 patients that participated in the study, 5 were Indians, 5 Coloured and 53 were African.

10 African participants tested HIV positive

3 Coloured participants tested HIV positive

2 Indian participants tested HIV positive

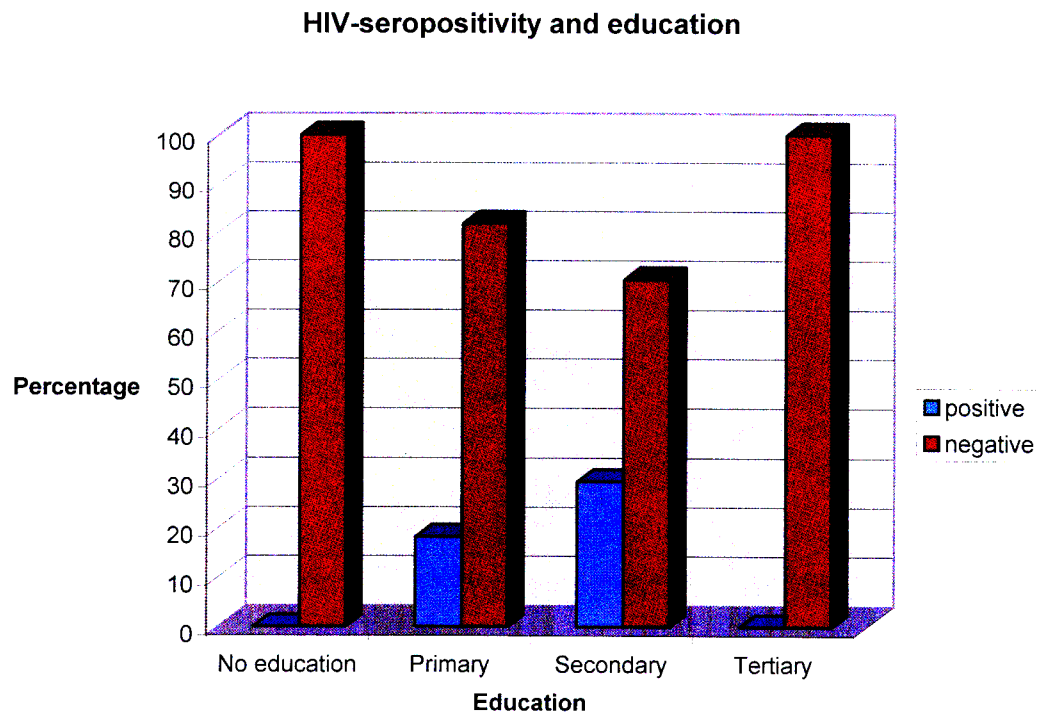
Figure 2: HIV sero-positivity and race in percentages.



5.1.5 HIV status and education

From a total of 63 participants, 1.6% of the sample had no formal education. 17.5% had primary education, 69, 8% had secondary education and 9, 5% had tertiary education. 1.6% of the participants were unable to confirm highest level of education achieved. All the participants with no formal education and tertiary education tested HIV negative, as opposed to 29.5% of those with secondary education and 18.2% of those with primary education.

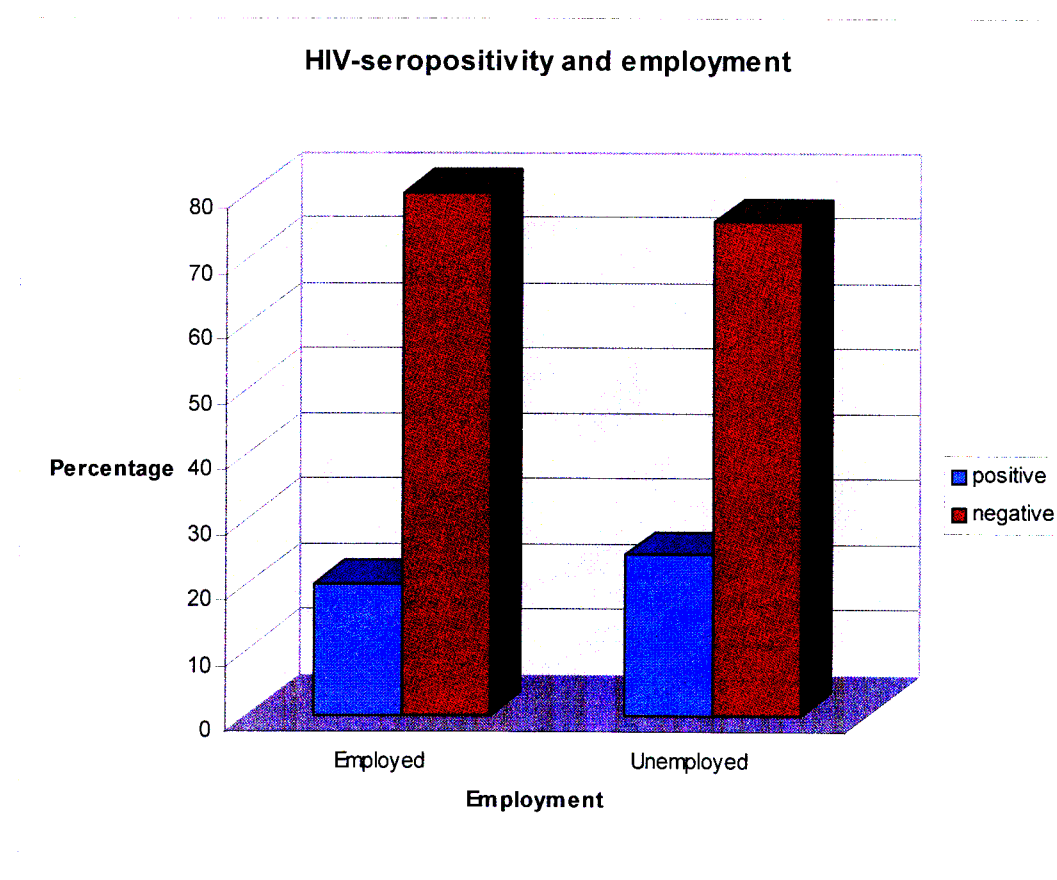
Figure 3: HIV status and education in percentages.



5.1.6 HIV status and employment

Of the 63 participants, 15, 9% had formal employment prior to their admission to hospital. The remaining 84, 1% was unemployed. From the total sample, 24.5% of those who were unemployed tested HIV positive and 20.0% of the employed group tested HIV positive.

Figure 4: HIV sero-positivity and employment in percentages.



5.1.7 HIV status and marital status

From the total number of 63 patients, 50 were single and 13 fell under the category other, which includes married, co-habiting and customary marriages.

From the total number of 50 single individuals, 41 were HIV negative and 9 were HIV positive.

From the total number of 13 individuals who fell under the category other, 7 were HIV negative and 6 were HIV positive.

Table 7: HIV status and marital status in numbers (n) and percentages.

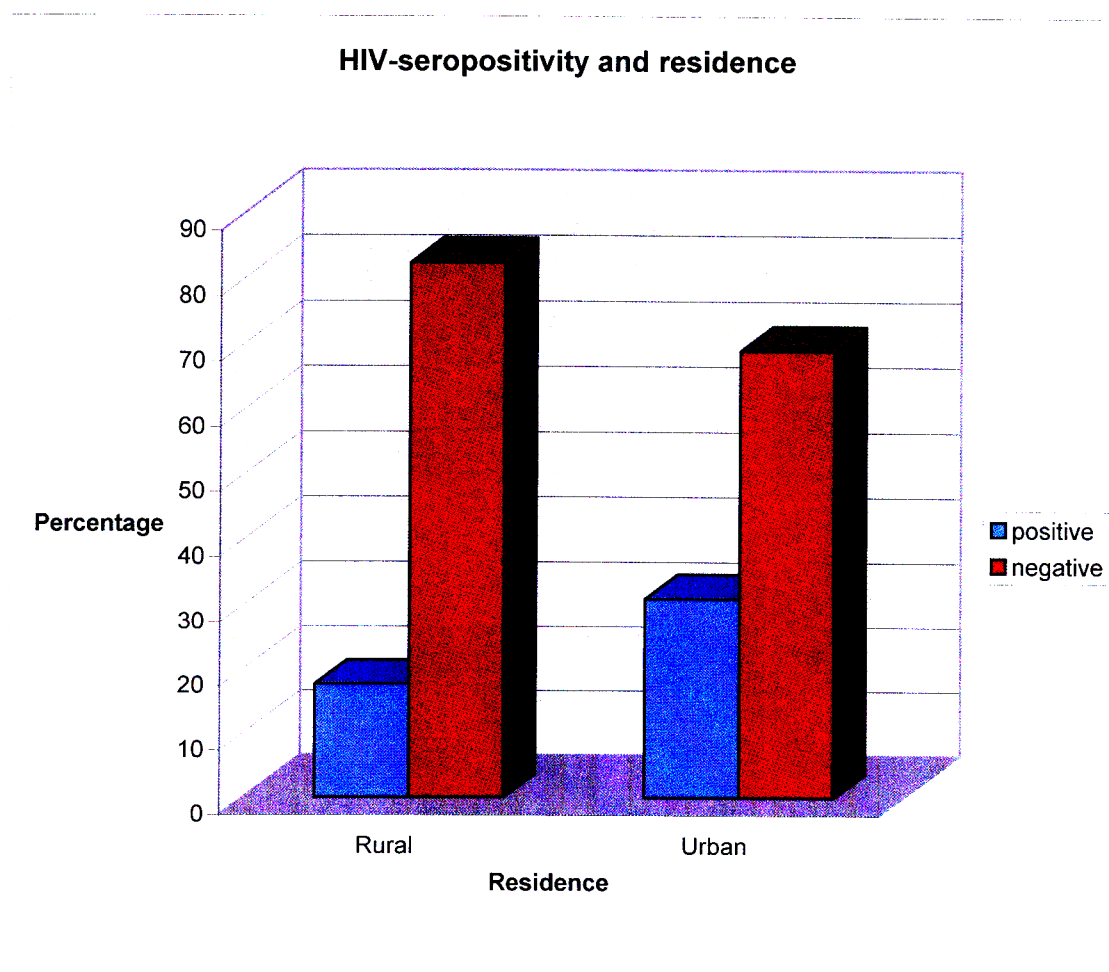
Marital status	HIV status		Total
	Neg	Pos	
Single	41 (n)	9 (n)	50 (n)
	82.0%	18.0%	100.0%
Other	7 (n)	6 (n)	13 (n)
	53.8%	46.2%	100.0%
Total	48 (n)	15 (n)	63 (n)
	76.2%	23.8%	100.0%

5.1.8 HIV status and area of residence

From a total number of 34 patients from rural areas, 6 tested HIV positive and 7 tested HIV negative.

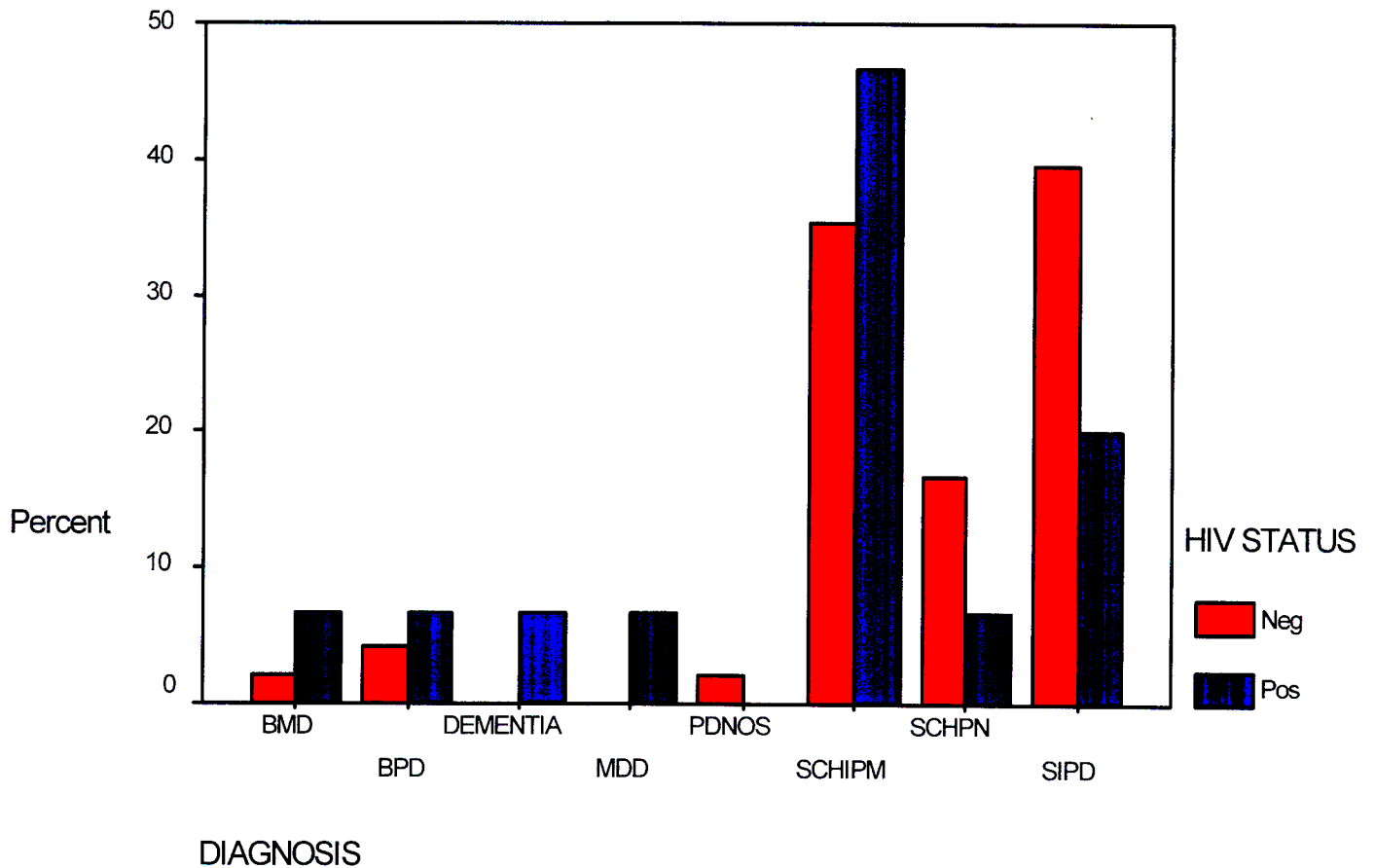
From a total number of 29 patients from urban areas, 9 tested HIV positive and 20 tested HIV negative.

Figure 5: HIV status and area of residence in percentages.



5.1.9 HIV status and Psychiatric diagnosis

Figure 6: HIV status and Psychiatric diagnosis



BMD-	Bipolar Mood Disorder
BPD-	Borderline Personality Disorder
MDD-	Major Depressive Disorder
PDNOS-	Personality Disorder Not Otherwise Specified
SCHIPM-	Schizophreniform Disorder
SCHPN-	Schizophrenia
SIPD-	Substance Induced Mood Disorder

5.1.10 HIV status and duration of symptoms

The average duration of symptoms was 15.13 weeks.

The range was 2weeks to 78 weeks.

Table 8: Duration of symptoms

Duration	Weeks
Mean	15.13
Std deviation	15.135
Minimum	2.0
Maximum	78.0

Table 9: HIV status and duration of symptoms

	HIV status	N	Mean	Std deviation	Std error mean
Duration	Pos	15	14.60	16.413	4.238
	Neg	48	15.29	14.89	2.150

CHAPTER SIX

DISCUSSION OF RESULTS

This study presents data on the sero-prevalence of HIV infection amongst patients presenting with first episode psychosis to Town Hill hospital over a six months period (September 2005-February 2006). This study shows some interesting results that require discussion and interpretation.

6.1 HIV sero-prevalence in FEP

Table 10: HIV sero-prevalence rates

	Positive	Negative	Total	p-value
<u>Gender</u>				0.034*
Male	18.0%	82.0%	100%	
Female	46.2%	53.8%	100%	
<u>Residence</u>				0.214
Rural	17.6%	82.4%	100%	
Urban	31.0%	69.0%	100%	
<u>Employment</u>				0.758
Employed	20.0%	80.0%	100%	
Unemployed	24.5%	75.5%	100%	
<u>Education</u>				0,479
No education	0%	100%	100%	
Primary	18.2%	81.8%	100%	
Secondary	29.5%	70.5%	100%	
Tertiary	0%	100%	100%	
<u>Marital status</u>				0.034*
Single	18.0%	82.0%	100%	
Other	46.2%	53.8%	100%	

*Statistically significant at the 0.05 level.

A sero-prevalence rate of 23.8% was found. A study done by Statistics South Africa in 2005 found a national prevalence rate of 10.8%. A study done by the South African Department of health in women attending 1,415 antenatal clinics across all nine provinces revealed an estimated prevalence rate of 29.1% among pregnant women in 2006. Thus, the study hypothesis that there is a high prevalence of HIV amongst individuals with FEP is correct.

The provinces that recorded the highest rates were KwaZulu-Natal, with a prevalence of 39.1%, Mpumalanga 32.1%, and Free State 31.1% (South Africa New HIV & AIDS Statistics, 2006).

There is need for a comprehensive examination of the co-morbidity that exists between HIV/AIDS and mental illness. HIV sufferers are at risk of developing mental illness and people who suffer from mental illness are at risk of HIV through sexual behaviour and substance abuse (Chung et al, 1999).

This also raises the possibility that psychosis could be a complication or even a manifestation of HIV infection. A study done by Sewell et al, 1994 on HIV associated psychosis found that patients who tested HIV positive showed a trend toward greater global neuropsychological impairment. They suggest that even though psychosis is an uncommon manifestation of HIV infection, it could remain one of the most serious complications.

6.2 HIV status and gender

In this study, the number of female participants was significantly lower than that of males. However the total percentage of women who tested HIV positive was higher (46.2% vs 18.0%). This was statically significant, with a p-value of 0.034.

Women are disproportionately affected by the HIV/AIDS epidemic. The incidence of HIV is 19 times higher for African-American women and seven times higher for Latina/Hispanic women, as compared to the incidence in Caucasian women. Among women of colour aged 25 and older, 73% of those with AIDS and 90% of those with HIV infection are African American (Anderson, 2000 page 22).

Furthermore, the majority of women diagnosed with HIV infection are women of child-bearing age between the ages of 16-44 years. These women are expected to make a series of complex decisions including contraception, pregnancy and abortion. Numerous psychosocial and economic obstacles may prevent these women from seeking health care. Developing intervention programs should take into account the cultural background of the female and education (Anderson, 2000 page 22).

The majority of women living with HIV infection live in poverty and struggle with complex economic issues as a result of homelessness, substance abuse, mental health disorders and violent relationships.

Most of their energy is spent meeting the basic needs for themselves and their families, which take priority over health problems including HIV infection. Many women have low self esteem and have trouble negotiating safe sexual practices with their partners. HIV infection in women is clearly a family issue, imposing social, psychological, and economic burdens on women who care for family members while they are ill (Anderson, 2000 page 302).

There are a number of formal psychiatric disorders among women with HIV infection; which require diagnosis and treatment. Women with HIV as well as women at risk of HIV have a higher lifetime prevalence of major depressive disorder, PTSD and borderline personality disorder than the general population (Grant I, Atkinson JH; 1995 page 1667).

6.3 HIV status and race

Until 1991, South African law divided the population into four major racial categories: blacks, whites, coloureds and Asians. Blacks comprise about seventy percent of the population; whites comprise about thirteen percent of the population, coloureds about nine percent and Asians about three percent (Statistics South Africa, 2006).

The same demographic patterns are evident in this study group. The majority of the admissions to Town Hill hospital are black male and female, followed by Indian then coloured.

HIV prevalence rates in South Africa are strongly correlated with race, gender, employment, income and education. Prevalence rates are lowest among whites and Asians, slightly higher among Coloureds and highest amongst blacks. This is most likely due to socio-political reasons. Although many white South Africans feel “insulated” from the HIV/AIDS epidemic, the population’s HIV prevalence is higher than the prevalence among any other white population in the world (Johnson, Budlender, 2002).

The findings in this research project indicate increasing prevalence rates of HIV among the Coloureds and Indians. Unfortunately there is no representation for the white population.

6.4 HIV status and area of residence

17.6% of participants from rural areas tested HIV positive and 31% of participants from urban areas tested HIV positive. The rural areas are less developed and less accessible, this probably contributes to the lower levels of HIV infection. Most people who are infected with HIV live in informal settlements. This suggests that housing and living conditions are a big factor in HIV transmission (Statistics South Africa, 2005).

Just as AIDS impacts negatively on development, so can development processes worsen the spread of HIV. The epidemic is rightly said to be associated with poverty. In many countries, the spread of HIV and

AIDS can be documented along transport and trade routes, in ports and cities, in border towns and rural growth points. For instance, road building in a development area increases mobility and migration; income generating activities create disposable income, which may lead to an increased use of sex workers (Jackson, 2002 page 8).

6.5 HIV status and marital status

In an attempt to facilitate data analysis, marital status was divided into two categories, i.e. single and other. The category other includes married, co-habiting and customary marriages. 18.0% of single individuals tested HIV positive as compared to 46.2% in the other group. This finding could be partially explained by the fact that individuals falling under this category are most likely to be sexually active. However, a sero-prevalence rate of 18.0% in single individuals is cause for concern.

6.6 HIV status and occupation

The findings in this study project do not indicate any significant differences in HIV status between the participants who were employed versus the unemployed.

However, in employment settings such as the gold mines in South Africa, where men live far from their wives and families in single sex hostels, levels of HIV infection are particularly high (Jackson, 2002 page 8). They live in crowded hostels; undertake dangerous work

everyday and understandably they turn to the solace of alcohol, drugs and sex. The miners say that in 10 years the rocks or dust will kill them, so why should they worry about HIV? (Jackson, 2002 page 30). Long distance truck drivers are similarly affected. They have become a natural focus for commercial sex.

6.7 HIV status and education

Only 1 participant had no formal education and he tested HIV negative. On the other hand 44 participants had secondary education and 29% of them tested HIV positive. All the participants with tertiary tested HIV negative. Common sense dictates that individuals with some form of formal education should at an advantage in terms of understanding and handling information that is freely available through the media.

There are many countries outside Africa, especially in Asia and Eastern Europe where HIV/AIDS continues to spread at an alarming rate; these are countries with very low levels of illiteracy.

Formal and non-formal education may result in greater social mobility and interactions, creating new needs especially among young people; adult literacy programs empower people, which can create tension between spouses, possibly leading to more extramarital relationships.

Similarly, the findings of this project suggest that a higher level of education does not necessarily offer an added advantage with regards

to the handling of information that may require some literacy. This also suggests that a high level of education does not render individuals capable of behaving responsibly; it does not change their knowledge, attitudes and practices. For example the education sector is one of the hardest hit department, despite the fact that all of them have attained tertiary qualifications. Teachers may be highly susceptible to HIV infection because their jobs take them away from their families. In addition to this, male teachers engage in sex with their students, a pattern of HIV transmission recognised in Zimbabwe and some parts of South Africa. (Jackson, 2002 page 29).

It appears as if the individuals, behaviour, practices, attitude, social circumstances and moral values will largely determine their chances of contracting HIV infection. I therefore would like to make the assertion that health education about HIV should be made available to all individuals irrespective of their level of education. How this information will be handled will depend largely on the individual's personality, beliefs, common practices and moral values.

6.8 HIV status and psychiatric diagnosis

6.8.1 Schizophreniform disorder

46.7% of this study group fulfilled the DSMIV criteria for schizophreniform disorder. Schizophreniform disorder is identical to schizophrenia except that its symptoms last at least one month but less than 6 months. Some patients who fulfilled criteria for this diagnosis

could represent patients with HIV psychosis because they have no identifiable cause for their psychosis, but this diagnosis may not be appropriate in the absence of positive neurological findings. Further research on this group of patients is needed.

6.8.2 Substance induced psychotic disorder

Generally, in sub-Saharan Africa intravenous drug injecting is not common and this route has probably not contributed widely to the spread of HIV. In our study the majority of substance abusers were male. The substances commonly used in our setting are alcohol and cannabis. The use of these substances is associated with higher prevalence rates of psychiatric disorders among these individuals. The combination of substance abuse and an underlying psychiatric illness places individuals at a higher risk of contracting HIV due to faulty cognitive functioning and impaired reality testing.

20% of the participants fulfilled the DSMIV criteria for a substance induced mood disorder. Cannabis induced psychotic disorder is diagnosed in the presence of a cannabis induced psychosis. The psychosis is transient and paranoid ideations are more common. Cannabis psychosis is a common presentation in our setting, resulting in multiple admissions to psychiatric institutions. It may be correlated with a pre-existing personality disorder like antisocial personality disorder. These individuals are often involved in violent activities like sexual assault, further escalating the spread of HIV.

6.8.3 Schizophrenia

6.7% of the study group participants met the DSMIV criteria for schizophrenia. This can be explained by the fact that we targeted individuals with first episode psychosis and the majority of them had been experiencing symptoms for less than 6 months. The DSMIV diagnosis of schizophrenia requires that the individual should have psychotic symptoms for a minimum duration of 6 months.

6.8.4 Bipolar mood disorder

6.7% of the study group participants met DSMIV criteria for bipolar mood disorder with psychotic features. This was an unexpected finding because individuals with manic episodes are prone to impulsivity, sexual indiscretions and excessive participation in pleasurable activities as a consequence of impaired judgement.

6.8.5 Dementia

6.7% of the participants met the diagnostic criteria for dementia with psychotic features. DSMIV allows for the diagnosis of dementia due to HIV disease when there is the presence of dementia that is judged to be the direct physiological consequence of HIV disease. In this study only one participant aged above 55 years fulfilled the diagnostic criteria for dementia. It may be inappropriate to presume that the underlying cause for this condition is HIV infection without having ruled out other aetiological factors.

6.8.6 Major depressive disorder with psychotic features

6.7% of the study group fulfilled the DSMIV diagnostic criteria of major depressive disorder.

Medical and neurological problems can manifest depressive symptoms e.g. Parkinson's disease, epilepsy, cerebrovascular disease and tumours. The DSMIV diagnosis of mood disorder due to a general medical condition describes a mood disorder caused by a non-psychiatric medical condition. Homosexuals, bisexual men and people who abuse intravenous substances should be tested for HIV (Grant I, Atkinson JH; 1995 page 1647).

6.8.7 Brief psychotic disorder

6.7% of participants fulfilled the DSM IV criteria for a brief psychotic disorder. According to DSM IV this disorder should last for at least one day but less than one month. Secondly, this disorder may have developed in response to a severe psychosocial stressor or group of stressors.

6.8.8 Borderline personality disorder with micro-psychotic episodes

6.7% of the study participants fulfilled the DSMIV criteria for borderline personality disorder. Patients with borderline personality disorder stand on the border between neurosis and psychosis. They are characterised by unstable interpersonal relationships, impulsivity, recurrent self mutilating behaviour and mood instability.

6.9 Duration of symptoms

Psychiatric diagnoses are determined largely by the duration of symptoms. This helps differentiate between syndromes with the same symptomatology but different aetiologies. The average duration of symptoms in our study population was 15 weeks. The range was 2 weeks to 78 weeks. Individuals who tested HIV positive had a mean duration of symptoms of 14.6 weeks whilst the HIV negative group had 15.2 weeks duration of symptoms.

This indicates that there is no significant difference in the duration of symptoms between the two groups. In addition these findings do not yield a lot of information that can be used to link HIV infection and first episode psychosis.

However, this raises a variety of possibilities with regards to the vulnerability to HIV. Living with a psychiatric condition for almost four months can predispose some of the individuals to indiscriminate sexual practices. Others can also take advantage of their impairment and inability to act decisively and autonomously.

CHAPTER SEVEN

CONCLUSIONS AND RECOMMENDATIONS

7.1 Conclusion

This study has found a relatively high prevalence of HIV infection amongst a socially excluded group who bear the double stigma of being HIV positive and mentally ill. The high sero-prevalence rate of HIV infection amongst patients with first episode psychosis raises a few questions.

Firstly, a possibility exists that the human immunodeficiency virus could be playing an aetiological role in first episode psychosis. However, an aetiological association between HIV and first episode psychosis remains to be established. A possible link can be presumed. This possibility needs to be explored further with scientific research that will focus on the characteristics of the virus and its direct effects on the central nervous system.

Secondly, the behavioural problems that are associated with psychosis could render the patients vulnerable to contracting HIV. This could be as a consequence of impaired judgement and the impairment in reality testing. It could also be due to the fact that some of the patients are coerced into taking part in sexual activities without their full participation and consent.

Furthermore, there is great concern that the sero-prevalence of HIV amongst the mentally ill seems to be escalating, this is evident when one compares the findings of this study with similar studies that were carried out in the same institution. The implementation of risk reduction programmes within these institutions need to be emphasised as this may be the patient's first contact with a medical facility.

The table below is synthesis of topics that can be explored in an attempt to evaluate and assess for risk-taking behaviour.

Table 11: Risk reduction topics

APPROPRIATE RISK REDUCTION TOPICS	
<ul style="list-style-type: none"> • Enhance self-perception of risk <ul style="list-style-type: none"> ○ Identify risk behaviour ○ Assess level of concern ○ Identify ambivalent feelings about risk 	
<ul style="list-style-type: none"> • Explore specifics of most recent risk <ul style="list-style-type: none"> ○ Identify specific risk details ○ Assess patient acceptable risk level ○ Address ability to communicate with partner ○ Identify situations that make the patient vulnerable to risk ○ Identify triggers of high risk behaviour ○ Assess patterns of risk behaviour 	
<ul style="list-style-type: none"> • Review previous risk reduction experience <ul style="list-style-type: none"> ○ Identify successful attempts at risk reduction ○ Identify obstacles to risk reduction 	
<ul style="list-style-type: none"> • Synthesize risk patterns <ul style="list-style-type: none"> ○ Summarize and reflect patient risk ○ Address risk in context of patient's life ○ Convey concerns and urgency regarding risk ○ Support and encourage the patient to action 	
Adapted from Kamb ML, Fishbein M, Douglas JM.et al JAMA 280:1161-1167,1998	

For the first time in a world-wide epidemic it has been necessary to try to change the fundamental aspects of human behaviour by education and dissemination of information (Lishman, 1987). It is abundantly evident that the best way of curbing the spread of this infection is through prevention since effective treatments are yet to be developed.

1. Based on the high prevalence of HIV sero-positivity in FEP in this study, it is recommended that patients presenting with first episode psychosis be tested for HIV provided they are able to consent to such.
2. Treating doctors should consider co-morbid HIV infection in patients with psychosis.
3. There is a great need for implementation of risk reduction programs in facilities for mentally ill patients seeking or currently receiving psychiatric services. This practice has to be emphasised based on the fact that a significant proportion of patients could be infected with HIV.
4. Particular emphasis should be placed on Voluntary Counselling and Testing upon symptom resolution. As long as the risks and benefits are understood by the patients, confidentiality is protected; counselling should be offered to most mental health care users.
5. As the major risk factor for HIV is sexual contact without the use of a condom, appropriate sexual education for the patients is vital. This can

be achieved by including this type of information during group meetings that take place regularly for in-patients.

6. Patients who are symptomatic should be referred to the appropriate medical facility with the view of getting them enrolled for the use of Highly Active Anti-retroviral drugs (ARV's).

7. Patients who have not yet manifested symptoms of AIDS can be counselled about living with HIV and a list of possible areas where treatment is available should be provided to the patient.

8. Improve quality of life for those who are already infected with HIV. Follow psychopharmacological principles which will not compromise their situation further. Appropriate environmental changes may be applied to further enhance the quality of life for those affected.

9. Gender empowerment programs since the percentage of women with HIV infection is higher than that of the male counterparts. Women are more vulnerable because often they are unable to negotiate safer sex practices and are frequently involved with men who have a number of sexual partners. They are also particularly vulnerable to sexual abuse and rape, and they are economically and socially subordinate to men. Women are likely to face more severe discrimination than men if they are known to be HIV positive. This can perpetuate an existing mental illness or an underlying vulnerability.

7.3 Limitations of the study

It is necessary to discuss the limitations of the present study so that the results can be viewed in perspective.

1. The main limitation of this study was a small sample size. The size of this sample may over or under estimate the HIV prevalence at the hospital. This was due to a variety of factors:

- The number of new admissions to Town Hill hospital was reduced significantly in 2005. This followed the implementation of the New Mental Health Care Act, which stipulated that patients with mental illness had to be observed in the medical wards for 72 hours before referral to a psychiatric unit.
- The pre and post -test counselling process was time consuming. As a result of this only a few cases could be done as the counselling was the sole responsibility of the principal investigator in the majority of the cases.
- The recruitment period of six months was short and therefore not representative of the admission patterns and disease profile over a period of time.
- The cost of the HIV testing was another limiting factor. The samples were collected by the principal investigator and sent to

a private laboratory for testing. The cost was borne by the principal investigator as there was no funding secured.

- The laboratory made use of a screening Elisa test, which was more affordable than other screening methods with superior specificity.
- Some suitable patients were discharged prior to recruitment, some were lost to follow up whilst others were not fit to participate in the research project.

2. Demographic discrepancies

There was no demographic representation for the white patients, younger and older age groups. This is due to the fact that patients aged less than 18 were excluded from the study because they were deemed not capable of giving informed consent.

Because of the above limitations, the results of this study cannot be extrapolated to the general population.

Nevertheless, the objective of the study, which was to give a snapshot overview of the prevalence of HIV amongst patients with first episode psychosis, will assist the hospital management and policy makers in the planning of current and future treatment and rehabilitation programmes. It is also recommended that VCT services continue to be

promoted and routine testing should be considered for persons seeking health care for diseases that are associated with HIV infection.

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Appendix I

Consent Document

Title of the study: the prevalence of HIV sero-positivity in patients with new-onset psychosis.

I (name).....

Hereby give consent for an HIV test to be done on my blood sample. I also give permission for my test results to be used for the purpose of this study.

I acknowledge that I have been informed by.....

Of the nature of the study, the procedure, the advantages and disadvantages of taking an HIV test.

I also acknowledge that I understand and accept that this study involves research. I have read the Information leaflet and I fully understand its contents.

I am aware that I may withdraw my consent at any time without prejudice to further care.

Signed.....

Subject.....

Date.....

Witness.....

Date.....

Incwadi yemvume

IMVUME YOKUZIBANDAKANYA NOCWANINGO

IPHEPHA LEMVUME.

ISIHLOKO OKUZOFUNDWA NGASO: Ukwanda kwe sandulela
ngculazi ezigulini ezibanezimpawu zokuphazamiseka emqovdweni
okokuqala.

Mina

Nginikeza imvume yokuba kuthathwe igazi lami lihlolele isanduleka
ngculazi.

Ngiyavuma futhi ukuthi imiphumela yami isetshenziswe
kulolucwaningo.

Ngiyavuma ukuthi ngichazeliwe ngu: Dr Sibongile Mashaphu uhlobo
locwaningo inqubo, ubuhle no bubi bokuhlolelwa isandulela ngculazi.

Ngiyavuma futhi ngiyaqonda ngiphinde ngamukele ukuthi kuzofundwa
ngokocwaningo. Ngifundile uhla lwezincazelo futhi ngiyizwile ingqikithi
yalo.

Ngiyazi ukuthi nginokuhoxisha lemvume noma kunini ngaphandle
kokuthikameziseka kokwelashwa kwami.

Sayina.....

Umnini/ umzali/ umbheki

osemthethweni.....

Usuku.....

Sayina.....

Ufakazi.....

Usuku.....

Umcazeli.....

Usuku.....

Ngemininingwane ungaxhumana nalaba cwaningi:

Dr S. Mashaphu: 031 260 4321

Medical Research Office: 031 260 4604

Appendix 2

Demographic questionnaire

Research Code.....

Age.....

Gender.....

Marital status:

1. Married.....

2. Divorced.....

3. Single.....

4. Cohabiting.....

Race:

1. African

2. Coloured.....

3. Indian.....

4. White.....

Area of residence:

1. Rural.....

2. Urban.....

Education:

1. No education.....

2. Primary.....

3. Secondary.....

4. Tertiary.....

Occupation

1. Employed
2. Unemployed.....
3. Self employed.....

Appendix 3

Patient Screening Document

Name.....

Age.....

Contact number.....

Ward.....

Source of referral.....

Past psychiatric history.....

.....

Duration of illness.....

Presenting symptoms.....

.....

.....

Medical history.....

.....

Substance history.....

Appendix 4

Information leaflet.

I, Dr S. Mashaphu am a doctor in the Department of Psychiatry at the Nelson Mandela School of Medicine.

I am conducting a study to determine how many patients presenting with psychosis for the first time are HIV positive.

You will be pre-counselled and consent will be obtained before the test can be done.

The study involves a blood test for HIV

The virus is found in the human blood, so I will obtain a blood sample from you. The blood is taken with a needle from the vein on the arm and is collected into a tiny specimen bottle.

Your name will not appear on the bottle or on the request form. A code will be used for identification purposes.

A virologist will do the test in a laboratory at Lancet laboratories in Durban. The results will be provided to you if you choose to know.

You will be counselled after the result is given to you whether the result is positive or negative.

You will be advised of possible routes of further medical, psychological and social interventions should they require those services.

Participation in the study is voluntary and strict confidentiality will be maintained.

You may withdraw from the study at any time.

Thank you for your participation.

Ulwazi oludluliselwa kulabo abazobamba iqhaza.

Mina, ngingudokotela uMashaphu, ngenza uphenyo ngesandulela ngculazi. Ucwangingo lolu luchaza ukuphenduleka kwemibuzo esiba nayo. Kuloluphenyo sifuna ukwazi ukuthi zingaki iziguli eziqalayo ukulaliswa e Townhill ezinezimpawu zesandulela ngculazi loluphenyo lungolokucwaninga hayi ukunanekela.

Loluphenyo lwenziwa ngoba kunezinga eliphezulu lokuthathelana ngesandulela ngculazi kulelizwe. Ocwaningweni olungaphambili kwatholakala ukuthi isandulela ngculazi siyayikhubaza ingqondo ngezindlela aziningi. Kuloluphenyo sifuna ukwazi ukuthi kungenzeka yini ukuthi isandulela ngculazi siyimbangela yezimpawu onazo zokugula ngengqondo. Siyacela ukuba ubambisane nathi kuloluphenyo.

Lolucwaningo lubandakanye ukuthathwa kwegazi lesandulela ngculazi. Uyokwelulekwa ngalesisifo kuqala bese usinikela imvume yokuthatha igazi. Futhi siyocela ukuba ugcalise iphepha lemibuzo ngempilo yakho.

Isandulela ngculazi sitholakala egazini lomuntu ngakho sizothatha igazi. Silithatha ngenaliti emthambeni wengalo lifakwe ebhodloleni eincane. Igama lakho ngeke libhalwe ebhodloleni nasephepheni elithunyelwa negazi. Kuzosetshentiswa uhlobo lwezimbobo

ekuhlukaniseni ukuthi igazi ngelikabani. Onguchwepheshe wokuhlola amagciwane nguye ozohlola igazi e Lancet laboratories eThekwini.

Uyokwelulekwa kuqala ngaphambi kokunekezwa imiphumela noma ngabe unesandulela ngculazi noma ungenaso. Yimina uDr Mashaphu engizokululeka ngaphambi kokuthathwa igazi nokunikwa imiphumela. Uma kwenzeka uthola ubunzima bokubhekana nemiphumela uyothola ukwelulekwa, nokuqondiswa ngokubhekana nemiphumela. Lokhu kuhlenganisa ukudluliselwa ezindaweni ezinokukusiza mayelana nezidingo zakho njengokululekwa kwengqondo, usonhlalakahle, nodokotela. Konke lokho ngaphandle kokukhokha.

Uzonikezelwa lonke ulwazi ngocwaningo ngesikhathi lusaqhubeka noma seluqediwe uma imiphumela isitholakala.

Ukubamba iqhaza ukuzinikela ngokuthanda kwakho, ukungavumi ukuzibandakanya nalolucwaningo akunanhlawulo futhi awulahlekelwa nzuzo noma ilungelo elikufanele. Uvumelekile ukuyeka phakathi noma inini ngokunjalo awulahlekelwa lungelo lakho elifanele futhi akunanhlawulo imizamo izokwenziwa yokuvikela yonke imininingwane ngawe ukuthi ihlale iyimfihlo. Isiqiniseko asikho salokhu ngoba ingakhishwa imininingwane yomontu futhi uma ifunwa umthetho.

Siyabonga ukubambisana nathi.